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Another bird of kindred species and not very unlike in plumage is *Orthonyx novæguineae.* In this case, however, the white on the under surface is far more extended. This hue is intruded upon by brown and black. The white above is less developed.

Pomatorhinus isidorii of the same family does not differ greatly in appearance. It is rather longer than the preceding and of a prevailing brown or russet, shaded more or less. Its length is about 8 inches. The female is like the male, perhaps a trifle larger in size.

A much smaller genus of birds is *Crateroscelis*, represented in New Guinea by two species, *C. murina* and *C. monarcha.* Here the ground color is still brown, brighter on the tail, darker on the head. Even the throat which is white is slightly tinged. So, too, the abdomen and lower parts generally. Total length 4.5 inches. The latter species has more white upon the under body, otherwise is mainly like the preceding.

RECENT LITERATURE.

Murray's Introduction to the Study of Sea-Weeds.[1]—In this work from the press of Macmillan & Co., George Murray has given us a book which will be of much service to those beginning the study phycology. The introduction treats briefly of the history of phycology, of the geographical and littoral distribution, and the structure of seaweeds, and there is appended thereto some valuable information on the collection and preservation of material. Following the introduction there is given a well selected list of eighty books and papers on phycology. The book is illustrated by eight full paged colored plates—four on the red, two on the green and two on the brown sea-weeds—and eighty-eight figures in the text. The figures in the colored plates are somewhat crowded, and the specimens figured are in some cases rather

[1] An Introduction to the Study of Sea-weeds, by George Murray, F. R. S. E., F. L. S., Keeper of the department of Botany, British Museum. With eight colored plates and eighty-eight other illustrations. London, Macmillan & Co., and New York, 1895, 271 pp., 12 mo.

fragmentary, but the figures in the text are very good. Most of them having been taken from the recent works of Retuke, Solms-Lauback and the author.

Five sub-classes are recognized, i. e., *Phæophyceæ*, *Chlorophyceæ*, *Diatomaceæ*, *Rhodophyceæ* and *Cyanophyceæ*. The general arrangement of the book is poor; the more complex groups are treated of first and the simpler last, except in the *Rhodophyceæ*, where the reverse order is followed. The *Rhodophyceæ* moreover " present so many difficulties to be understood only after the study of other groups that the author has chosen the *Phæophyceæ* with its familiar forms of sea-wracks and tangles for the first sub-class. The *Chlorophyceæ* and *Diatomaceæ* follow naturally. The *Rhodophyceæ* next make a series by themselves, and finally, come the simple *Cyanophyceæ*. In the *Phæophyceæ* seventeen orders are recognized which are the same as those of Kiellman in Engler and Prantl's *Pflanzenfamilien* with a few exceptions. *Spermatochnus* is placed in the *Sporochnaceæ* and *Myriotrichia* in the *Elachistaceæ* instead of each standing in an order by itself; the *Dictyoteæ* are placed between the *Cutlereaceæ* and *Tilopteridaceæ* instead of being left out altogether; the *Ralfsiaceæ* are placed near the *Sphacelariaceæ* instead of near the *Laminariaceæ* as they have been by Kiellman and others. *Splachnidium*, a monotypic genus found only in the southern oceans, which has until recently been included among the *Fucaceæ*, is placed in an order by itself—the *Splachnidiaceæ*. It has been found that the conceptacles of *Splachnidium* contain sporangia similar to those of the *Laminariaceæ* instead of oospores and antheridia, hence it is placed near that order. The marine *Chlorophyceæ* are treated under eleven orders; many recent facts as to their reproduction being incorporated. At the end of two groups, the *Pereclineæ* and the Coccospheres and Rhabdospheres are briefly mentioned as being on the borderland between the vegetable and animal kingdom. In the twenty pages devoted to the *Diatomaceæ*, the structure, reproduction, geographical and geological distribution are quite fully discussed, but nothing is said of the arrangement of the groups and very little of its systematic position. We can agree with the author that the diatoms should not be placed in the *Phaeophyceæ* solely because they have a coloring matter closely related to that of the brown sea-weeds, but we can hardly agree that a siliceous covering and the presence of diatomine are sufficient to separate so widely two groups otherwise so closely related as the diatoms and desmids.

According to the preface " the account of the *Rhodophyceæ* is based on the scattered papers of Schmitz, who by utilizing his own researches and the splendid investigations of Thuret and Bornet, has almost wholly altered the classification of the sub-class." Four orders are recognized, based upon the development of the cystocarp; the *Menalionaceæ, Gagartinaceæ, Rhodomenaceæ, Cryptonemiaceæ.* The *Bungiaceæ,* including *Perphyra,* are placed at the end of the *Rhodophyceæ* as an *Anhang.* In the last ten pages the *Cyanophyceæ* are briefly treated under two orders, the *Nostocaceæ* and *Clerocaccaceæ.* Throughout the work each order and in the larger orders each family is synoptically treated under four heads; general character, thallus, reproduction and geographical distribution. In it are embodied the results of the latest investigation on all groups, much having been taken from the able investigations of the author and his associates. Errors are comparatively few, one of the most noticeable being the mentioning of genus *Egregia* as one of the Fucaceae (P. 55). It is again mentioned in its proper place among the *Laminariaceae* (P. 85).

DE ALTON SAUNDERS.

Taxonomy of the Crinoids.—The true position of a science in the scale of progress is measured by the degree of perfection exhibited in the systematic arrangement of the phenomena of which it treats. Its claims to philosophic recognition are proportional to the accuracy of the genetic relationships shown in its system of classification. If this be true of a general science, it is no less a reality in its various departments. There is, perhaps, nowhere a better exemplification than the Crinoids; and no zoological group has made in recent years more rapid progress towards a rational classification.

The data upon which the systematic arrangement of the stemmed echinoderms rests are elaborately set forth in the lately issued work of Messrs. Charles Wachsmuth and Frank Springer.[2] It is of great interest to know that the advancement in an understanding of the group has been almost wholly from the paleontological side and that the results are accepted practically without change by the most eminent students of the living forms. As is well known, the crinoids are to-day almost extinct; but that in past geological ages they were the most prolific forms of life. On account of the peculiar construction, unusually great opportunities are afforded for the solution of morphological problems, and full advantage has been taken. Upon so firm a foundation does the classification of the crinoids, as prepared by Wachsmuth and Springer now rest, that it is hardly probable that it will require radical change for a century to come.

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[2] North American Fossil Crinoidea Camerata: Memoirs Museum Comp. Zool., 2 parts, 800 pp., and atlas of 83 plates. Cambridge, 1895.